

Remarks

Claims Rejections - 35 USC 102(b)

Claims 1, 36, and 37 were rejected as being anticipated by Hyatt.

A) Rejection of Claim 1 over Hyatt:

This rejection is based on a misinterpretation of the following term:

“a connecting structure between said optical element and said mount, having a symmetry characteristic...”

In view of [0008] of the specification (and elsewhere)

“A connecting structure between the optical element and the mount has a symmetry....”.

The claim language clearly is intended to read:

“a structure having a symmetry”,

wherein the structure is qualified as

“a connecting structure between said mount and said optical element” (sequence changed to show the sequence is not significant.)

The “Response to Arguments” in numbered section 5 on page 8, bottom, of the Office Action, states that Hyatt’s Fig. 16 F shows the mounting structure clearly lacks a symmetry.

To clarify the claim without any change to its scope, we have amended Claim 1 to read:

“a connecting structure between said mount (optical element) and said optical element (mount), having a symmetry...”

The “radiation that lacks symmetry....” feature is connected to Fig 13 without any reasoning why Fig. 13 would be related to this feature or to its context, or to Figs. 16.

The description of Fig. 13, col. 6, lines 26-28 clearly states that it shows electro-optical elements, not any radiation. Its discussion in col. 23 “Segment arrays” shows that it is not meant

to create geometrically structured light, but integrally varied intensities over its full cross section. Nowhere in the “Electro-optical Thermal Design” chapter starting at col. 50 and leading to and including the description of cited Figs. 16 a - f at col. 53 - col. 56 is Fig 13 recited. So it is in no way shown what the Examiner’s recital of Fig. 13 in the context of Figs. 16 a-f could mean.

B) Rejection of Claim 36 over Hyatt:

The passage at the end of numbered section 2 of the office action recites “, wherein said passive thermally conducting element comprises an assembly of portions of different material [Fig. 16F, 1630 and 1632/1633].” This is a recital of the final clause of Claim 36 and, in brackets, a listing of reference numerals. In this we cannot see any concise explanation that complies with the following requirements of 37 CFR 1.104 c(2)

“In rejecting claims for want of novelty or for obviousness, the Examiner must cite the best references at his or her command. When a reference is complex or shows or describes inventions other than that claimed by the Applicant, the particular part relied on must be designated as nearly as practicable. The pertinence of each reference, if not apparent, must be clearly explained and each rejected claim specified.”

The description of Fig. 16 F in col. 56 specifies:

1630: thermally conductive bonding material (line 16)

1632: Case can provide a heat sink (lines 18, 19)

1633: lens or other heat sinking 1633 and heat transfer devices can be provided on case 1632, (lines 23-25).

In Fig. 16 F only 1610 (IAD) can be an equivalent of the claimed optical element. Only case 1632 can be an equivalent of the claimed mount. And only bonding material 1630 can be

an equivalent claimed thermally conducting element - at most, and not to be interpreted as being from Applicant's point of view.

No hint whatsoever of 1630 being "an assembly of portions of different material" can be found, as specified in Claim 36.

The Examiner might suggest that parts 1630, 1632, 1633 of Fig. 16 F are of different materials, but such is not found in Hyatt, and would not be related to the claim language of Claim 36.

C) Rejection of Claim 37 over Hyatt:

Claim 37 is cancelled. New Claim 45 is introduced. New claim 45 starts with "A system comprising - and follows with the text of Claim 37 after "comprising - ". This text describes a microlithographic exposure system

Hyatt clearly is distinct from such, as now the preamble of cancelled Claim 37 is transferred to the body of new Claim 45.

Claim Rejections - 35 USC 103(a)

Claims 1-3, 5-12 and 17-36 were rejected as being unpatentable over Unno in view of Nishi et al (Nishi).

Claims 13-16 were rejected as being unpatentable over the combination of Unno and Nishi and further in view of Tsugami.

Valid rejection under 35 USC 103(a) requires evidence of a suggestion or motivation for one skilled in the art to combine prior art references to produce the claimed invention. US Court of Appeals for the Federal Circuit (*Ecolchem inc. v Southern California Edison Co., Fed. Cir.*, No. 99/1043, 9/7/00).

The best defense against hindsight-based obviousness analysis is the rigorous application of the requirement for showing a teaching or motivation to combine the prior art references, according to the court.

Unno, Nishi or Tsugami do not motivate or suggest to one skilled in the art to combine any of these references to produce Applicant's claimed invention.

Recently, in *In Re Sang-Su Lee* (00-1158) the Court of Appeals for the Federal Circuit rendered a decision confirming the above principles. The court analyzed 35 USC 103 requirements starting from the Administrative Procedure Act and held (citations omitted):

"Tribunals of the PTO are governed by the Administrative Procedure Act, and their rulings receive the same judicial deference as do tribunals of other administrative agencies.

"The Administrative Procedure Act, which governs the proceedings of administrative agencies and related judicial review, establishes a scheme of "reasoned decision making."

Not only must an agency's decreed result be within the scope of its lawful authority, but the process by which it reaches that result must be logical and rational.

"As applied to the determination of patentability vel non when the issue is obviousness, it is fundamental that rejections under 35 USC §103 must be based on evidence comprehended by the language of that section. (Emphasis added). When patentability turns on the question of obviousness, the search for and analysis of the prior art includes evidence relevant to the finding of whether there is a teaching, motivation, or suggestion to select and combine the references relied on as evidence of obviousness. (Emphasis added)

"The factual inquiry whether to combine references must be thorough and searching. It must be based on objective evidence of record. This precedent has been reinforced in myriad

decisions, and cannot be dispensed with. Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references. There must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the Applicant. Teachings of references can be combined only if there is some suggestion or incentive to do so.”

As stated above, **Unno, Nishi or Tsugami do not motivate or suggest to a person skilled in the art to combine any of these references to duplicate the claims of the present invention.**

D) Clarity of statements:

On page 3, numbered section 4 of the Office Action, first “Claims 1-3, 5-12 ... are rejected...”, then “Regarding claims 1-12 and...” the statement which follows includes Claim 4.

This is contradictory and not understood.

Page 4, the Office Action states “Regarding claim 3, Examiner maintains “that in Hyatt ‘396...” This is not understood, as Hyatt is not cited in the introductory part of page 4 (first and second paragraphs of page 4). The text does not show, how and in which combination and on which legal basis (35 USC 102 or 35 USC 103) this patent is applied.

Claim 1

This claim is never treated specifically, only in mingled conjunction with other claims on pages 3 and 4 of the Office Action.

Fig. 1 reference numeral W of Unno is the wafer plane, certainly a field plane of the system, but just as certainly not a plane where any lens of the projection objective 9 can be

situated. No hint is given by the Examiner's recitals of Figs. 1 and 2, why lens 41 of Fig. 2 should be located anywhere specific in Fig. 1 or even to be near the wafer plane W.

Consequently, this cannot be understood.

Further, Claim 1 does not contain the term "field plane" at all (only claims 21-24 do).

On page 4 of the Office Action the combination with Nishi is treated. Except for the claim language recital from our application only the bracket recital [Fig. 2, G1, G 2, 4] in the first paragraph on page 4 give information from Nishi.

But, this schematic cross section drawing cannot provide qualified information about symmetries in a plane perpendicular thereto.

In the "Response to Arguments" section on page 9 of the Office Action certain additional information is found.

However, we have not found in the cited portion of Nishi (col. 3, lines 52-61) a recital of temperature control.

It also remains true, that in Nishi any symmetry deviations of the G1, G2 elements of Fig. 2 are gas supply holes and are only motivated for this gas supply purpose.

In the detailed description related to Fig. 2 and temperature control found in Nishi, col. 11, lines 26 - col. 12, line 14 it is stated that "a gas chamber enclosed by the lens elements 33, 34 and the lens frame 34 is sealed," (col. 11, lines 39,40) and "Since the temperatures of the lens elements 36A and 37A are controlled by ..." (col 11, lines 64, 65).

So it is clearly shown that the G 2 structure of Fig. 2 is a cylindrical tube structure - only with the small gas tubes penetrating -, and only the temperature of lenses as a whole is controlled. See also col. 3 lines 52-61 cited on page 9 of the Office Action in Bold letters; "controlling a temperature of at least one of the optical members...".

Nothing hints to any substantial deviation from rotational symmetry related to temperature control or anyhow related to a problem known from Unno.

A feature of gas supply holes is a property of Nishi, which makes it distant from the Applicant's claimed invention, and consequently it is not a feature on which Applicant relies.

It is also to be noted, that the part in parenthesis on page 9, first paragraph of the Office Action is not fully understood: What deviates from (rotational) symmetric shape? Is it lenses (deviations from a ...shape of lenses....)?

Additionally, Nishi does in no way give the feature missing from Unno.

Claim 2:

The same holds as above in D) for Claim 1. Additionally the Examiner's argument on page 10, first full paragraph,

“(i.e. passive cooling of optical elements adapted to the geometry of their exposure are not recited in the rejected claims(s)” appears incorrect at least for this claim 2, see lines 5, 6 “...heat that results....lacks symmetry” and line 9” ... compensation of the asymmetry of temperature distribution”.

Note that the lack of symmetry is to be read as a property of the heat, which in the claim is explicated “that results from said radiation”.

So Claim 2 contains a feature not found in Unno or Nishi and consequently is non-obvious.

The argument on page 4 of the Office Action recites Unno, Figs. 2, 13, 14. No information is given in the Office Action, as to what this recitation means.

In col. 6, lines 13, 14 “temperature controlling devices 13 and 14” is found. These are explained in detail in col. 7, lines 51-67:

Lines 58 - 79: "As a first method therefore, external heat may be applied...

Lines 62-64: "As a second method...may be cooled ..."

Only the second method at all refers to cooling. In col. 9, lines 41-59 said cooling means is explained:

Lines 55-57: "Each cooling device may have a specific structure that a cooled gas is blown against the position at the lens periphery".

So only a method and means of active cooling is described.

A control means 15 for the 13, 14 devices is shown as mandatory (Fig. 2, col. 6, lines 15, 16, col. 9, lines 58, 59). Such is needed for active cooling, but void for passive cooling according to the invention.

So Unno does not teach that 13, 14 were "single- or multi-part thermally conducting element ...having a form of heat transport that effects ...compensation...", as recited in Claim 2.

Consequently, Claim 2 is non-obvious.

Claim 3

Here from Unno only the same recital as discussed above for Claim 1 and 2 is given. Consequently, additionally the specific feature in Claim 3 "in which said thermally conducting element comprises adjustable portions" is not addressed.

Such is not disclosed by any of said references.

On page 4 of the Office Action this feature is said to be inherent from Hyatt.

No sound basis for such finding is given. Factually such is strange even to Hyatt (see discussions above).

Furthermore, no showing is given in the Office Action as to how Hyatt should be used: -
which section of the patent law? Which combination with Unno or Nishi

We cannot determine any way and line of argument from Unno, Hyatt or Nishi that would render claim 3 obvious.

Claim 4 stands rejected over the triple combination of Unno, Nishi and O'Brien et al. (O'Brien).

However, no showing is given as to how Nishi is applied in this combination.

The holding in page 6 of the Office Action, third paragraph,

“Regarding Claim 4, Pat. ‘273 (Unno) discloses....”

is erroneous: At least the feature “...passively thermally conducting part...” is missing in Unno as discussed above. The written description of Fig. 2 also gives no support for a holding that parts 13, 14 could be “part covers a portion of the cross section...”.

Certainly as reported in the Office Action page 6 last paragraph, Unno has no disclosure of “passive thermally conducting element comprises an assembly of portions of different material”.

The Examiner recites O'Brien as to combine with the other cited art and to add this feature.

Fig. 1 and col. 3, lines 10-43 are recited. The recited reference numerals designate according to the cited part of the specification:

24 inner compensation ring

26 outer compensation ring

30 flexure plate, material selected for low thermal conductivity so as to thermally isolate
(lines 32-34)

44 thermal isolation spacer.

The whole is an assembly of a laser diode 38 and a collimating lens 36.

In this, obviously only lens 36 can be an "optical element that is heated by radiation".

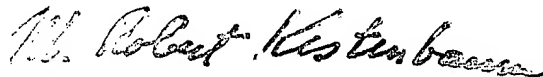
Laser diode 38 is self-heating by its lasing process. This lens 36 is exclusively connected to the assembly by part 30, which is designated to thermally isolate. Also it is rotationally symmetric as the whole arrangement is cylindrical (col. 3 lines 6, 7).

Laser diode 38 is connected to active cooling thermo electric cooler 40 via uniform cylindric part 39. Consequently, claim 4 is not obvious.

Wherefore, further consideration and allowance of the claims is requested. This Amendment After Final Action is necessary to place the claims in condition for allowance or to place this application in better condition for appeal.

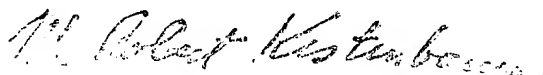
A Notice of Appeal is included herewith. A two-month extension of time in which to respond to the outstanding Office Action is hereby requested. Credit Card Payment Form PTO-2038 is enclosed to cover the prescribed Large Entity two-month extension fee of \$420, as well as the Notice of Appeal fee of \$330. Please charge any additional fees or credit any overpayments to Deposit Account 11-0665. A duplicate of this page is enclosed for this purpose.

Respectfully submitted,



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I hereby certify this correspondence is being deposited with the U.S Postal Service as a first class mail in an envelope with adequate postage addressed to PO Box 1450, Commissioner for Patents, Alexandria, VA 22313 on December 15, 2003.



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